

REMARKS

The Office Action dated April 12, 2005 has been received and reviewed. In the preceding amendments, claims 1, 4 and 5 have been combined, claims 10 and 11 have been combined and claims 13 and 14 have been combined.

The above amendments should be entered at this time, since they do not raise any new issues that would require further consideration and/or search, and they raise no issue of new matter. In view of the following remarks, the amendments clearly place the application in condition for allowance or in better form for appeal by materially reducing and simplifying the issues. Accordingly the amendments should be entered at this time.

In view of the above amendments and the following remarks, Applicants respectfully request reconsideration of this application, and allowance of the claims, as amended.

Claims 1-4 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,591,795 to Janak. Claim 10 was rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,591,795 to Janak. Claims 13-14 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,591,795 to Janak. Insofar as these rejections could apply to the claims, as amended, they are respectfully traversed.

Applicants submit that Janak describes a primitive lost motion system. Janak fails to teach or suggest a feedback loop redirecting hydraulic fluid from a valve actuation means when the engine piston moves close to the engine valve; and a check valve disposed in the feedback loop, for allowing hydraulic fluid flow from a control chamber to a high-pressure reservoir when pressure in the control chamber exceeds pressure in the high-pressure reservoir.

In view of the above, withdrawal of the rejections of claims 1-4, 10 and 13-14 based on Janak is respectfully requested.

Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over Janak in view of U.S. Patent No. 5,537,976 to Hu. Insofar as this rejection could apply to the claims, as amended, it is respectfully traversed.

The above discussion of the deficiencies of Janak reference is equally applicable here, and incorporated herein by reference.

Hu discloses a low pressure system including a pump (90) which supplies pressurized hydraulic fluid to the circuitry from a sump (92). This pressure is sufficient to fill the hydraulic circuit with fluid via check valves (94, 96 and 98) and to push master pistons (50 and 80) and slave pistons (58 and 88) out into contact with cams (40 and 70) and the tops of valves (30 and 60).

Hu's structure differs from claim 15, because there is no suggestion of a check valve between the control chamber (within which the slave pistons 58 and 88 operate) and the high pressure reservoir (within which the master pistons 50 and 80 operate).

Furthermore, Hu combined with Janak fails to disclose a feedback loop from a control chamber to a high pressure reservoir via a check valve, for allowing hydraulic fluid flow from a control chamber to a high-pressure reservoir when pressure in the control chamber exceeds pressure in the high-pressure reservoir.

In view of the above amendments and remarks, withdrawal of the rejection of claim 15 based on Janak in view of Hu is respectfully requested.

Claims 1-4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hu in view of Hackett. Insofar as this rejection could apply to the claims, as amended, it is respectfully traversed.

The above discussion of the deficiencies of the Hu reference is equally applicable here, and incorporated herein by reference.

Hackett is cited in the Office Action as teaching to utilize a valve-piston clearance profile. Hackett fails to teach or suggest a check valve to control the hydraulic fluid flowing between a control chamber and a high-pressure reservoir.

Hu combined with Hackett fails to teach or even remotely suggest a check valve disposed in a feedback loop, for allowing hydraulic fluid flow from a control chamber to a high-pressure reservoir when pressure in the control chamber exceeds pressure in the high-pressure reservoir.

In view of the above amendments and remarks, withdrawal of the above rejection based on Hu combined with Hackett is respectfully requested.

Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Hu in view of Hackett. Insofar as this rejection could apply to the claims, as amended, it is respectfully traversed.

The deficiencies of Hu discussed above are equally applicable here, and incorporated herein by reference.

The deficiencies of Hackett discussed above are equally applicable here, and incorporated herein by reference.

Hu combined with Hackett fails to disclose or suggest a feedback loop from a control chamber to a high-pressure reservoir via a check valve, such that when the pressure in the control chamber exceeds the pressure in the high-pressure reservoir, hydraulic fluid flows to the high-pressure reservoir from the control chamber to prevent piston-valve collision.

In view of the above amendments and remarks, withdrawal of the rejection of claim 10 based on Hu in view of Hackett is respectfully requested.

Claims 13-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hu (US Patent 5,537,976) in view of Hackett (US Patent 6,092,495). Insofar as this rejection could apply to the claims, as amended, it is respectfully traversed.

The deficiencies of Hu discussed above are equally applicable here, and incorporated herein by reference.

The deficiencies of Hackett discussed above are equally applicable here, and incorporated herein by reference.

Hu combined with Hackett fails to disclose or suggest a feedback loop from a control chamber to a high-pressure reservoir via a check valve, such that when the pressure in the control chamber exceeds the pressure in the high-pressure reservoir, hydraulic fluid flows to the high-pressure reservoir from the control chamber to prevent piston-valve collision.

In view of the above, withdrawal of the rejection of claims 13 and 15 based on Hu in view of Hackett is respectfully requested.

Claims 5-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hu in view of U.S. Patent No. 6,321,703 to Diehl *et al.* Insofar as this rejection could apply to the claims, as amended, it is respectfully traversed.

The above discussion concerning the deficiencies of Hu is equally applicable here, and incorporated herein by reference.

Diehl discloses a high-pressure reservoir (29) and a control chamber (11). According to the Office Action, high pressure reservoir 29 is also considered to be a check valve. A careful reading of Diehl reveals that high pressure reservoir 29 clearly is not a check valve. Diehl does disclose check valves (31 and 36). However, they are not used in the same manner as required by amended claim 1. In Diehl's structure, to assure a preset standing pressure in the high pressure supply line (23), and in order to prevent the escape of pressure fluid from these lines in the event of damage, a check valve (31) is inserted into the high pressure supply line (23) upstream in the flow direction from the split into the branch line (25), the working pressure reservoir (29), and the first control valve (27).

In order to prevent the line (33) and the upper working chamber (15) from being drained, a check valve (36) that opens in the direction of the reservoir (21) is also inserted into the discharge line (33) of Diehl.

Diehl's structure differs from the amended claims because there is no check valve between a control chamber and a high pressure reservoir, as defined in the

amended claims.

Diehl cannot be combined with Hu to suggest a feedback loop having a first check valve disposed therein, the first check valve configured to allow hydraulic fluid to flow from a control chamber to a high-pressure reservoir when pressure in the control chamber exceeds pressure in the high-pressure reservoir.

In view of the above, withdrawal of the preceding rejection based on Hu and Diehl is respectively requested.

Claims 11-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hu in view of Hackett (as applied to claim 10), and further in view of Diehl et al. (US Patent 6,321,703). Insofar as this rejection could apply to the claims, as amended, it is respectfully traversed.

The above discussions concerning the deficiencies of the Hu, Hackett and Diehl are equally applicable here, and incorporated herein by reference.

There simply is no way to combine Hu, Hackett and Diehl to teach or even remotely suggest a feedback loop from a control chamber to a high-pressure reservoir via check valve, as presently claimed, such that when pressure in the control chamber exceeds pressure in the high-pressure reservoir, the hydraulic fluid flows to the high-pressure reservoir from the control chamber to prevent piston-valve collision.

In view of the above, withdrawal of the rejection based on Hu in view of Hackett and further in view of Diehl et al. is respectively requested.


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Applicants submit that the present application is now in condition for allowance.
Reconsideration and favorable action are earnestly requested.

Respectfully submitted,

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